CLAIMS

We claim:

1. A dispenser apparatus for dispensing medical items comprising:

an enclosure, wherein said enclosure bounds an interior area, and wherein said enclosure includes an opening to said interior area;

a door in operative connection with said enclosure, wherein said door is movable between a closed position wherein said door closes said opening, and an open position wherein said door is disposed away from said opening;

a path extending in said enclosure, wherein said path is in connection with a delivery area, whereby dispensed medical items are accessible to a user in said delivery area;

a dispenser module, wherein said dispenser module is movably mounted on said enclosure, wherein said dispenser module includes a holder, wherein said holder enables holding said medical items therein, and a dispenser mechanism wherein said dispenser mechanism is selectively operable to dispense medical items from said holder at a dispense location, and wherein said module is movable on said enclosure between a first position and a second position, wherein in the first position said module is within said enclosure and said dispense location is positioned adjacent the path, and wherein when said door is in the open position the dispenser module is movable to the second

position, wherein in said second position said module extends through said opening and said holder is manually accessible, whereby said medical items may be added or removed therefrom.

2. The apparatus according to claim 1 wherein said holder includes a helix, wherein said helix separates an inside area within said helix from an exterior area outside said helix, and wherein said dispenser mechanism includes a rotating mechanism selectively rotating the helix, and wherein said dispenser module further includes a holder guide, wherein said holder guide is in operative connection with said module, and wherein said holder guide includes a first portion extending in a longitudinal direction in the inside area of the helix and a second portion extending in the longitudinal direction and in the exterior area of said helix.

3. The apparatus according to claim 2 wherein said helix terminates at a free end adjacent to said dispense location, and wherein said first and second portions of said holder guide are connected through a closed end portion, and wherein upon rotation of said helix said free end is movable through said closed end portion of said holder guide.

4. The apparatus according to claim 2 wherein said holder guide is releasibly mounted on said dispenser module, and wherein said holder guide is required to move to disengage from said helix, and wherein when said dispenser module is in the first position

and said door is in the closed position, movement of said holder guide to disengage from said helix is prevented by said door.

5. The apparatus according to claim 3 and further comprising a first guide wall extending in the longitudinal direction in said exterior area, and wherein said first guide wall is disposed between said first and second portions of said holder guide, and wherein said closed end portion of said holder guide is engaged with said first guide wall.

6. The apparatus according to claim 2 wherein said rotating mechanism includes a spool, and wherein said spool is releasibly engageable with a first end of said helix, and wherein said holder guide is movably positionable on said module, and wherein said helix is replaceable with a second helix having a different diameter, wherein said second helix has a second inside area, and wherein said holder guide is movable to a second position wherein said first portion of said holder guide extends in the second inside area of said second helix.

7. The apparatus according to claim 5 wherein said dispenser module further comprises a second guide wall disposed from said first guide wall in a direction transverse of said longitudinal direction, and wherein said helix is positioned between said first and second guide walls, and wherein said first and second guide walls are movable relative to one another in the transverse direction.

8. The apparatus according to claim 1, wherein movement of said dispenser module from said first position towards said second position when the door is in the closed position causes said dispenser module to extend in said path.

9. The apparatus according to claim 8 wherein said dispenser module includes a supporting surface, and wherein said holder is disposed on a first side of the supporting surface, and wherein when said dispenser module extends in said path said supporting surface is disposed between said holder and said delivery area.

10. The apparatus according to claim 8 and further comprising a releasible locking mechanism releasibly holding said dispenser module in the first position, and further comprising a biasing mechanism biasing the dispenser mechanism towards the second position, wherein when said releasible locking mechanism is released with said door in the closed position the biasing mechanism biases the dispenser module to move to extend in blocking relation in the path.

11. The apparatus according to claim 8 and further comprising a second dispenser module mounted within the interior area of the enclosure, wherein said second dispenser module includes a second dispense location adjacent said path and a second holder for holding medical items therein, and wherein when said first dispenser module extends in said path said first dispenser module is disposed in said path between said second dispense location and said delivery area.

12. The apparatus according to claim 1 and further comprising a second dispenser module movably mounted on said enclosure, and wherein when said first and said second dispenser modules are in the first position in said enclosure, said second dispenser module is disposed in a first direction from said first dispenser module, and wherein the holder of the first dispenser module includes a guide, wherein said guide is releasibly engageable with said first dispenser module, and wherein release of said guide from said first dispenser module is enabled responsive to movement of said guide in the first direction, and wherein when said first dispenser module is in the first position said second dispenser module blocks sufficient movement of said guide in the first direction to enable disengagement of said guide from said first dispenser module.

13. The apparatus according to claim 12 wherein said guide comprises a hook portion, and wherein said hook portion is operatively engaged to the first dispenser module adjacent said path, and wherein said guide is required to rotate a first angular distance to disengage said hook portion, and wherein rotation of said guide said first angular distance is prevented by the second dispenser module in the first position of said first and second dispenser modules.

14. The apparatus according to claim 13 wherein said first dispenser module includes a plurality of disposed slots, and wherein said guide is selectively positionable on said first dispenser module when said first dispenser module is in said second position by selectively engaging said hook portion in a selected one of said plurality of slots.

15. The apparatus according to claim 14 wherein said guide includes a finger portion disposed at an end of said guide opposed of said hook portion, and wherein said dispenser module comprises a plurality of second slots, wherein said second slots are disposed from said first slots, and wherein said finger portion is selectively engageable with one of said second slots.

16. The apparatus according to claim 1 and further comprising an energy absorbing carom surface disposed in said path intermediate of said dispense location and said delivery area.

17. The apparatus according to claim 16 wherein said door includes an interior surface, and wherein said interior surface is configured to guide medical items from said dispense location towards said carom surface.

18. The apparatus according to claim 16 wherein said delivery area includes a pocket, wherein said pocket is disposed vertically below said carom surface.

19. The apparatus according to claim 16 wherein said delivery area is disposed in a downward direction and an outward direction relative to said carom surface, and wherein said carom surface extends in a direction that extends both downward and outward.

20. The apparatus according to claim 19 wherein said delivery area is bounded in the outward direction by an energy absorbing stop surface.

21. The apparatus according to claim 16 wherein said path includes a throat area, wherein a cross sectional area of said path is reduced in said throat area, and wherein said carom surface extends in said throat area.

22. The apparatus according to claim 1 wherein said holder comprises a pair of disposed helixes, whereby one medical item is engageable with each of said helixes, and wherein said dispenser mechanism comprises a rotating mechanism, and wherein said rotating mechanism selectively rotates said helixes in coordinated relation to move an item engaged with said helixes to the dispense location.

23. The apparatus according to claim 22 wherein said rotating mechanism is operative to counterrotate said helixes relative to one another.

24. The apparatus according to claim 22 wherein said dispensing mechanism is adjustable wherein a transverse distance between said helixes is selectively adjustable, whereby medical items of varied transverse dimensions are enabled to be dispensed from said dispenser module.

25. The apparatus according to claim 1 wherein in said second position of said dispenser module said dispenser module is disengageable from said enclosure.

26. The apparatus according to claim 25 and further comprising a quick disconnect electrical connector, wherein said connector is enabled to be disconnected from said dispenser module when said dispenser module is in the second position.

27. The apparatus according to claim 1 wherein said holder comprises a reference surface extending adjacent medical items in said holder, wherein said reference surface includes indicia thereon indicative of numbers of medical items in said holder.

28. The apparatus according to claim 27 wherein said holder comprises a rotatable helix and said reference surface extends adjacent said helix.

29. The apparatus according to claim 28 wherein said dispenser mechanism includes a spool, wherein said spool is releasibly engageable with a plurality of different sized helixes, and wherein said reference surface includes indicia corresponding to each of said plurality of different sized helixes.

30. The apparatus according to claim 29 wherein said indicia extends in parallel, side by side relation on said reference surface.

31. The apparatus according to claim 1 wherein said dispenser module includes a plurality of holders, wherein each holder comprises a rotatably movable helix.

32. The apparatus according to claim 1 and further comprising a second dispenser module movably mounted on said enclosure independent of movement of the first dispenser module, and wherein said second dispenser module includes a second holder, wherein medical items are enabled to be held in the second holder, and wherein said second dispenser module includes a second dispenser mechanism, wherein said second dispenser mechanism is selectively operable to dispense medical items in said second holder at a second dispense location, and wherein said second dispenser module is movable between a third position and a fourth position, and wherein in said third position said second module is housed within said enclosure and said second dispense location is positioned adjacent said path, and wherein when said door is in the open position the second dispenser module is movable through said opening to the fourth position wherein said second holder is manually accessible.

33. The apparatus according to claim 32 wherein in the first and third positions of said first and second dispenser modules respectively, said second dispenser module is disposed vertically above said first dispenser module and the second dispense location is disposed in closer proximity to said opening than said first dispense location.

34. The apparatus according to claim 32 wherein the first dispenser module includes in the first holder at least one first type medical item, said first type medical item

comprising a solid medication, and wherein said second dispenser module includes in the second holder at least one second type medical item, said second type medical item comprising a liquid medication, and wherein the first and second dispenser modules are each movably mounted on guides supportably connected with said enclosure, wherein the first and second dispenser modules are interchangeably positionable on said enclosure on said guides.

35. The apparatus according to claim 34 wherein said second dispenser module includes a movable cover, wherein in the fourth position of said second dispenser module said cover is movable between an up position and a down position, and wherein in the down position said cover extends in adjacent relation above the second holder, and wherein when said second dispenser module is in the third position said cover is prevented from moving to the up position.

36. The apparatus according to claim 1 wherein the dispenser module includes a plurality of said medical items, and wherein each of said medical items includes a generally cylindrical container, and wherein said containers are arranged in aligned side by side relation in a stack, and wherein in the first position of said dispenser module said containers in the stack are biased to move by gravitational force towards the dispense location, and further comprising a follower in engagement with said stack, wherein said follower is generally cylindrical in cross section, and further comprising a guide in supporting connection with said dispenser module, wherein said guide extends adjacent said stack, and wherein said follower includes at least one annular groove, and wherein said guide extends in

said annular groove during rotational movement of said follower towards said dispense location.

37. The apparatus according to claim 1 and further comprising a lock, wherein in a locked condition said lock holds said door in the closed position, and wherein in an unlocked condition of said lock said door is enabled to be moved to the open position, and further comprising a first unlocking mechanism and a second unlocking mechanism wherein each of said first and second unlocking mechanisms are independently enabled to change said lock from the locked to the unlocked condition, and wherein said first unlocking mechanism is operative responsive to electrical signals and said second unlocking mechanism is operative to responsive to manual manipulation.

38. The apparatus according to claim 1 wherein said holder includes a helix, and wherein said helix separates an inside area within said helix from an exterior area outside said helix, and wherein said helix includes a free end, and wherein said dispenser mechanism includes a rotating mechanism selectively rotating said helix, and wherein said dispensing mechanism further includes a limiting member extending in the inside area of said helix and adjacent said free end, wherein said limiting member is operative to prevent medical items from passing through said inside area absent rotation of said helix.

39. The apparatus according to claim 38 wherein said dispenser module further includes a holder guide, and wherein the holder guide extends in the inside area of the helix, and wherein the limiting member is in supporting connection with the holder guide.

ADD A2)